



## Relativistic Time and Space in Medieval Journeys to the Other World

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Medieval descriptions of journeys to the Other World often contain a temporal distortion which their protagonists experience personally; their spatial movement leads them to cross a temporal border too, so that their return to the earthly space does not coincide with a return to the time which they have left; the time spent in the Other World turns out to be substantially reduced or expanded if compared to the one they spent in this world; such distortions are analogous to some of the implications of the theory of relativity.

In the following pages, I set forth a working hypothesis – born alongside reading some medieval Romance texts – whereby I attempt to establish a connection between literature and science, two spheres of thought which are usually considered as quite distinct and unrelated.<sup>1</sup>

### 1.

In an anonymous *Lai* of the XII century<sup>2</sup>, while hunting a white wild boar, a Knight called Guingamor rides into the depths of a forest and gets lost; he finds himself in front of a wonderful palace which is completely empty, and meets a girl near a spring of water who promises him the white boar if he follows her. Guingamor falls in love with the girl and follows her into the palace, which immediately fills up with ladies and knights. The hero decides to stay there for three days, after which he will leave (« n'i cuida que .II. jors ester | et au tierz s'en cuida raler», vv.533-34 ). When he asks the girl to let him go back to his family and to receive the promised boar, she warns him against such a folly: all of his relatives have died in the meantime, as three hundred years have gone by («.III. C. anz a, si sont passé, | que vos avez ici esté. | Mors est votre oncles et sa gent, | ni avez ami ne parent», vv. 551-54); in disbelief, Guingamor asks her to go back anyway, so the girl cautions him not to drink or eat anything after crossing the water borderline of her country (« Ele li dist: je vos chasti | qant la riviere avrez passee | que ne bevez ne ne mangiez | por nule fain que vos aiez | desi que seriez reperiez | tost en seriez engigniez», vv. 564-70). The knight leaves for his country and meets a coalman from whom he learns that three hundred years have really gone by; overwhelmed by hunger, he forgets the warning and eats some apples: all of a sudden he gets older and, near to dying, he is rescued by two ladies who reproach him but take him back with them.

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<sup>1</sup> In writing section 2 of this paper, I relied on the precious contribution of the physicist Ettore Majorana, who read my text and suggested a more accurate scientific wording for some of the passages. While being grateful to him, I take full responsibility for establishing the link between medieval texts and the theory of relativity.

<sup>2</sup> One can read it in the edition with translation by Alexandre Micha, *Lais féériques des XII<sup>e</sup> et XIII<sup>e</sup> siècles*, Paris, Flammarion, 1992 (reprinting Prudence Mary O'Hara Tobin, *Les Lais anonymes des XII<sup>e</sup> et XIII<sup>e</sup> siècles*, Genève, Droz, 1976).

Walter Map, a cleric living at the court of Henry the Plantagenet and Eleanor of Aquitaine, wrote *De Nugis Curialium*<sup>3</sup> during the second half of the XII century. In this collection of anecdotes of various origins, whose main aim was to amuse the courtesans and educate them, there is one particular chapter (*de Herla rege*, the eleventh of the *Distinctio prima*) which contains a tale well-known as an archetype of the wild hunt legend (that is the *mesnie Hellekin*).<sup>4</sup> It talks about the story of the Breton king Herla («regem antiquissimorum Britonum») who had a visit from a grim man, halfway between Pan and a pygmy («pigmeus videbatur modicitate stature, que non excedebat simiam»). This man announced that he would be present at Herla's wedding to the daughter of the king of the Franks; in return, one year later, the Breton king would be invited to the pygmy's marriage («sitque fedus eternum inter nos, quod tuis primum intersim nupciis, et tu meis consimili die post annum»). So the day of the wedding banquet, the pygmy turned up with his rich and large retinue, bringing along everything to meet the needs of all the guests. One year later, he came back to ask Herla to honour their pact, and invited the Breton king to his wedding. Together they went through a dark cave and reached the pygmy's palace, sparkling and splendid. Once the ceremony was over, Herla took his leave and was accompanied to the cave; he was given a little dog, and was warned that neither he nor his followers should dismount from the horses before the dog had jumped to the ground («omnibus modis interdicens ne quis de toto comitatu suo discenda usquam, donec ille canis a portatore suo prosiliat»). Back in his kingdom and in the sunlight, Herla was told by a shepherd that the Saxons had been ruling the land for over two hundred years and hardly anybody remembered him, whereas he thought he had been away only for three days («stupefactus ergo rex, qui per solum triduum moram fecisse putabat, vix hesit equo»). Some of the king's followers, forgetting about the warning, dismounted and turned to dust in a few seconds: the king and his retinue rode ever since, waiting in vain for the dog to jump down («unde fabula dat illum Herlam regem errore semper infinito circuitus cum exercitu suo tenere vesanos sine quiete vel residencia»).

In the first half of the XIII century, a Latin manuscript preserves the legend of the foundation of a Cluniac Monastery amidst the Italian Alps, allegedly collected by the bishop of Bamberg, Eberhard<sup>5</sup> (probably in the second half of the XII century). The son of a certain duke was about to marry, but among his various guests his guardian angel was missing, and he really cared for him; therefore in the evening he entered a church and began to pray. On his way back home, he met an old man dressed in white, riding a white mule, who said he was 'his good friend'. The young man invited him to his wedding, entrusting the old man with the organisation of the banquet. Once the banquet was over, the old man took leave, bidding the young man to take part in the feast he himself would give three days later. He told him to follow the white mule in order to find the place. So the Duke's son, on the back of the mule, crossed a very dark and tight way and came to an open and flowery land, where he met some blissful men who accompanied him to his old friend's home. Here he was welcomed with such joy that he stayed for three hundred years, which, however, seemed to him no longer than three hours. Meanwhile the relatives, whom he had left behind, had turned the castle into a monastery and had been buried there. Remembering them, the young man expressed the wish to go back home, and so he did, despite the old friend's warning not to. Nothing, however, was like it had been before. He

<sup>3</sup> See C.N.L. Brooke e R.A.B. Mynors, *Walter Map, de nugis curialium*, Oxford, Clarendon Press, 1983.

<sup>4</sup> See at least two recent books: Karl Meisen, *La leggenda del cacciatore furioso e della caccia selvaggia*, a cura di Sonia Maura Barillari, Alessandria, Edizioni dell'Orso, 2001, and Margherita Lecco, *Il motivo della mesnie Hellekin nella letteratura medievale*, Alessandria, Edizioni dell'Orso, 2001.

<sup>5</sup> See Arturo Graf, *Miti, leggende e superstizioni del Medioevo*, Torino, Loescher, 1892-1893, vol.1, pp. 90-92, and the analysis of Giuseppe Gatto, «Le Voyage au Paradis. La christianisation des traditions folkloriques au Moyen Age», *Annales.E.S.C.*, 1979, 34, 5, pp. 929-42.

knocked on the monastery's doors and the abbot showed him the graves of his relatives. A big banquet was offered to him, but as soon as he ate the food he turned old and died soon after. He was buried alongside his former bride.

These three tales are not the only examples of medieval narrations of journeys to the Other World where space-time alterations play a significant role: many others<sup>6</sup> from monastic or Celtic sources, or even taken up by modern folklore could be cited – though, in my opinion, a comprehensive study is still missing. The three examples I have presented here are however indicative of the principal cultural layers of medieval society: the profane one in vernacular; the profane one in Latin; and the religious one in Latin. Secondly, one could also find in them the phenomenology of a wider process, namely 1) the expression of a folk culture, whose transmission is mostly oral, accessing written literature through the vernacular language; 2) its function shift within the official Latin culture, for the benefit of the higher classes; 3) and finally its monastic clericalisation (again in Latin) with an integral semantic shift of the original core.

Furthermore, these three tales display in the clearest way the most important and recurrent motives of the international repertoires<sup>7</sup> of folklore such as, for example, the variants of the AT 470 type, *Friends in Life and Death*, or the motives D 2011 *Years thought Days*, F 116 *Journey to the Land of the Immortals*, F 377 *Supernatural Lapse of Time in Fairyland*, which can be also found within the homiletic literature (look at *Index exemplorum*<sup>8</sup> the numbers 780 – *Bridegroom absent 300 years*: it's the story collected by Eberhard, the bishop – and 3378 – *Monk Felix* who listens to the heavenly song of a little bird for one or more centuries). Evidence of the chronological and geographical diffusion of this plot can be found in a XIX-century text of Breton folklore and in one of the oldest Japanese tales.

Toward the end of the nineteenth century<sup>9</sup> in Brittany there was this tale about two close friends who promised each other an invitation to their respective weddings. One of them died; yet the other, in order to keep his promise, went to his friend's grave to invite him. The dead man materialised, accepted the invitation, and even led the bride to the altar (though only the spouses could see him). When the ceremony was over, the dead man told his friend that he too would be invited to his wedding in the afterworld. After a while the journey took place and the living man was swiftly taken by a white mare to the land of the dead. Here he participated in the three-day celebrations of his friend's wedding. After that, the white mare brought him back, but he could not recognize his old world, as all of his friends had died long before in the three centuries which had gone by.

In the VIII-century Japanese tale of Urashima the fisherman,<sup>10</sup> the hero is taken by a turtle, which he had saved, to a palace under the ocean belonging to the god of the sea. Down there, the hero takes part in a banquet and marries the god's daughter, staying with her for several days. When he asks permission to go back to his world, he is given a magic box which should not be opened. Back on dry land, no one recognises him and his house has disappeared. He

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<sup>6</sup> See also the anthology edited by Giuseppe Tardiola, *I viaggiatori del Paradiso*, Firenze, Le Lettere, 1993.

<sup>7</sup> Antti Aarne – Stith Thompson, *The Types of the Folktale. A Classification and Bibliography*, Helsinki, Suomalainen Tiedekatemia, 1961; Stith Thompson, *Motif-Index of Folk-Literature*, Bloomington, Indiana University Studies, 1932-1936.

<sup>8</sup> Frederic C. Tubach, *Index exemplorum. A Handbook of Medieval Religious Tales*, Helsinki, Suomalainen Tiedekatemia, 1981.

<sup>9</sup> The text collected by Paul Sébillot in 1882 (*Les Traditions et superstitions de la Haute-Bretagne*) is quoted by Gatto, «Le Voyage au Paradis», p. 932.

<sup>10</sup> I found this tale in the book by Donà, *Per le vie dell'altro mondo* (see next footnote), which deals with temporal distortions on p. 373.

thinks he is dreaming and opens the magic box out of which comes a white smoke turning him into a decrepit old man.

If we analyse these plots – as has partly been done – we see that the contrast between the two worlds, the Earth and the Beyond, is depicted through two distinct, yet mirror-like chronotopes. Communication between them is possible only to a magic vector, i.e. an enchanted leading animal. In these pages I won't discuss this theme because it has already been the object of exhaustive and documented research by Carlo Donà.<sup>11</sup>

I will, instead, dwell upon other aspects. The Breton folkloric text helps us to focus on the theme of the double invitation (to a feast) connecting two characters, sometimes introduced as two "Friends". The pattern is that of a gift and a counter-gift, a pattern, as anthropologists<sup>12</sup> know, which presupposes a reciprocity and at the same time draws a difference between the two partners, who in these tales are ontologically very dissimilar (one belongs to the world of the living, the other to the world of the dead). This theme has been thoroughly studied because it is linked to a very famous legend, that of Don Juan: the living man invites the dead man to a banquet, but the deal requires that the former accepts the latter's subsequent invitation. This acceptance will be fatal for Don Juan, who will leave the earthly world forever. The incompatibility between the two worlds is also shown by the prohibition to eat food or other such prohibitions: 'non si pasce di cibo mortale chi si pasce di cibo celeste' (Da Ponte). When the living person comes back from the Other World he must not taste mortal food, otherwise he becomes old at once and dies some time later. The motif of the prohibition and its infringement, typically belonging to fairy tales, is used in these plots to represent the privileged condition of being immortal, and sometimes, of bliss too, which the hero eventually attains by crossing a border forbidden to the other human beings. Invisibility, which is the hallmark of the dead, is the second sign used in these texts to emphasize the difference between the two worlds, their inhabitants, and the extraordinary journey made by the protagonist. The return to earth is always characterised by encounters, a failure to recognise places which have undergone radical transformations, and other signs of elapsed time. Time is the most unsettling element in these tales. It is a time which runs at two different speeds, though anchored to a frame of reference and to space coordinates (such as the cave, the river, the sea, the forest, the darkness, the light, the "remotely controlled" animal which knows the way to cross the fourth dimension, and so on).

Since these texts belong to the medieval literature in Latin and in vernacular, analyses conducted so far<sup>13</sup> have rightly emphasized differences and similarities in terms of narrative semiotics, so as to identify their connections with the pre-Christian culture, and the Celtic one for instance, in the description of an afterworld<sup>14</sup> adjacent to the earthly world. Such an afterworld, which is easy to reach by crossing horizontally a natural border, possibly following a white animal, is characterised by beauty, bliss, ecstasy, often conveyed through a feminine figure (such as a fairy)<sup>15</sup>. This representation, intertwined with fairy tale elements, such as the

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<sup>11</sup> *Per le vie dell'altro mondo. L'animale guida e il mito del viaggio*, Soveria Mannelli, Rubbettino, 2003.

<sup>12</sup> Within a rich bibliography I point out only the recent *Vincolare, ricambiare, dominare. Il dono come pratica sociale e tema letterario*, a cura di Nicolò Pasero e Sonia M. Barillari, Alessandria, Edizioni dell'Orso, 2007.

<sup>13</sup> See also Jean Claude Schmitt, «Tempo, folklore e politica nel XII secolo», in *Religione, folklore e società nell'Occidente medievale*, Roma-Bari, Laterza, 1988, pp.151-81 («Temps, folklore et politique au XII<sup>e</sup> siècle. A propos de deux récits de Walter Map. 'De Nugis Curialium' », in: Jean-Marie Leroux (Hrsg.), *Le temps chrétien de la fin de l'antiquité au moyen âge III<sup>e</sup>-XIII<sup>e</sup> siècles*, Paris 1984, 489-515).

<sup>14</sup> See the classic volume by Howard R. Patch, *The Other World according to descriptions in medieval literature*, Cambridge (Mass.), Harvard University Press, 1950.

<sup>15</sup> One can think also of the Legend of Tannhäuser dwelling on Venusberg.

deserted palace, the wonderful architecture, the luxurious furniture, the plentiful and delicious food, and so on, is the basis upon which the theme of the vision of the afterworld rests, in the monastic and clerical variants. This will in turn become a genre<sup>16</sup> of its own, where one living being is chosen to learn what awaits the dead, in particular following the judgment passed upon their conduct on earth. However this path is just traced in our examples and, after all, the Christianization of the journey concerns only secondary details: the castle turns into a monastery, the afterlife into heaven, and the wild hunt into hell.

What is really interesting for me is how these stories deal with time, and the idea of it implicitly conveyed by these old texts. Other studies have already talked about a “miraculous time length”, pointing out how it could be a sign of the influence of the biblical tradition (the incommensurability of heavenly time in comparison with the human one), or about a “time distortion” typical of the afterlife and the supernatural dimension, traceable in some accounts of the mystics. The significance of the different time speeds in the two ‘worlds’, that is in the two frames of reference, has however not been commented upon. Of the above-mentioned examples, only the folkloric Breton text of the XIX century contains some embryonic awareness of this aspect, where it emphasises that the white mare carrying the living man to the land of the dead and back is exhausted and sweating because of her running like an arrow between the two dimensions. If we try to translate these images into scientific terms, we will recognise at once that relativity is the most suitable theory to describe what happens during these fictional journeys to the Other World.

## 2.

From a cognitive or anthropological point of view, a parallel can be drawn between what happens in these journeys and Albert Einstein’s relativity theory<sup>17</sup>. The fulcrum of this theoretical system is based on kinematics; in other words, it is based on the principle derived from the experimental observation that the speed of light sets an absolute speed limit to how fast matter or information can move. Now, any measurement of time or space is always taken by comparing the quantity to be calculated with a temporal or spatial frame of reference. According to relativity, assuming the light speed  $c$  as a constant and as the maximum speed, we can deduce real measurements of time intervals (clocks) and line segments (rods) intrinsically *dependent on the relative motion* between the observer’s system and the measurement apparatus. Already within the special relativity, that is as far as the kinematics amongst uniform (linear) motion systems is concerned, the beauty of this theory is not only formal but also practical, because it allows to naturally deduce the reciprocity of observations among the different frames of reference; this is very important to prove the thesis that the law of physics keeps its coherence and validity when shifting from a frame of reference to another.<sup>18</sup>

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<sup>16</sup> An important anthology is *Visioni dell’aldilà in Occidente. Fonti, modelli, testi*, a cura di Maria Pia Ciccarese, Firenze, Nardini, 1987.

<sup>17</sup> My main sources have been Albert Einstein, *Relatività: esposizione divulgativa*, Torino, Bollati Boringhieri, 1991 (*Relativity, the Special and the General Theory: A Popular Exposition*, 1920), and Id., «Dialog über Einwände gegen die Relativitätstheorie», *Die Naturwissenschaften*, 6, 48, 29/XI/1918, pp. 697-702, and Paul Davies, *I misteri del tempo. L’universo dopo Einstein*, Milano, Mondadori, 1996 (*About Time*, 1995).

<sup>18</sup> If we impose that physics does exist, namely if the laws describing experiments must not change from one reference system to another – the opposite would be a chaotic and arbitrary universe, where even cognitive science would not have a sense – one can safely say that relativity is a positive theory of measurements and is far away from the idealistic view developed not only by pre-scientific or unscientific

Before the relativity theory, time had a different function, namely indexing the instants of the evolution of natural processes. This was valid both for everyday life and for the study of natural events. In most cases, the method was that of ordering the events against fixed time scales taken as universal references. The problems were sometimes very complex, but they were confined to processes taking place in quite limited space-times. More or less consciously, time was associated to a functional role. By contrast, if the speed of light is assumed as the maximum finite speed of information transfer, it is impossible to synchronize clocks without considering their position and their relative motion.<sup>19</sup> Given the impossibility of defining a universal simultaneity, the role of time loses the centrality it has in everyday life and in the human conscience. According to relativity, the clock of a man who travels faster than we do “is seen by us” to be beating slower, and the rod that he keeps in line with the direction of his motion “is measured” to be shorter.

Now we can say that the two worlds depicted in the tales above correspond to two systems of coordinates, or two “reference bodies”: within our medieval texts the earthly world and the other world behave like two frames of reference, each with its own time. Already this circumstance helps us to understand why “three days” in the other world correspond to “three centuries” in our world. The quantities reported in the texts are clearly not to be regarded as precise mathematical values; what counts is that time in the other world runs much slower; slower and not faster than the system of coordinates of the earthly world, as has often been pointed out<sup>20</sup> analysing these stories. It may seem superfluous to reiterate that while “here” years and centuries fly away, in the other world, where the hero is, time is virtually motionless.<sup>21</sup>

Going back to the example of the two clocks, Einstein explains that when a clock is standing still in a precise point, A, if another clock moves from A to B and (backwards) from B to A covering a long enough distance and keeping a constant speed, once it is back in point A, it will be behind the first clock. This phenomenon is called time dilation. Furthermore, according to general relativity, the higher the gravitational potential of the place where a clock is, the faster this clock will run. Our medieval tales provide evidence of this in that the earthly time, with its gravitational field, runs faster than the time of the other world.

The theory of relativity tells us not only that the time interval between two events is not invariant, as it undergoes dilation if measured by a clock in motion relative to the events, but also that at high speeds ( $v$  approaching more and more the light speed  $c$ ) times dilate to infinity. This is tantamount to saying that *at the speed of light time doesn't elapse*. As has partly been illustrated through a famous mental experiment, the phenomenon of time dilation implies that

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thought, but also by classical physics itself, which set up a misleading and science-fictional system by hypothesizing a possibly infinite speed between frames of reference [footnote by E.M.]

<sup>19</sup> According to the relativity of simultaneity principle, events happening at the same time against one reference frame are not simultaneous against another frame which is moving relative to the first: we must not consider the time necessary for a certain accident, relative to a body rapidly moving away from us, as having an equal duration as the same accident seen from the place where we are, taken as a reference body.

<sup>20</sup> Also by scholars such as Schmitt, «Tempo, folklore e politica», pp. 164-65.

<sup>21</sup> Not only does the time interval between the two events depend on the state of motion of the reference body, but, according the theory of special relativity, if we have two identical clocks, the one which is in uniform motion relative to the other must go slower. Einstein explains that motion gives the clock a speed which is a little lower than that of the state of rest (the time between two ticks as seen in the ‘moving’ frame is larger than the time between these ticks as measured in the ‘rest’ frame) – even though it is practically impossible to give the clock a motion comparable to the speed of light.

a spaceman travelling at the speed of light to reach the closest star, 4 light years away, on his return to earth would find that people are not just 8 years older, but centuries older. Most probably even the memory of his departure would be lost. Whereas, with the relativistically dilated time, only 8 years have elapsed for him, for those who have remained on the earth, centuries have gone by.

Even without getting into the details of theoretical physics, it should be acknowledged – maybe surprisingly – how our medieval texts are far from being fantastic and unconnected to the scientific view of the world; the enchanted vector transporting the hero to heaven is unknowingly applying relativistic principles: where space contracts time dilates (Einstein); the other world is within the range of a ride in the forest, a much shorter distance than one could imagine, as long as the ride is at the speed of light. This is an impossible speed to reach, or to exceed, but only for an earthly body.

To sum up, we can say that in these medieval tales the other world is imagined as a place where time does not mark the countdown toward the end of a mental process (be it observing, loving or translating an intention into practice). The need – which is clearly not dictated by logic or science but fits into an anthropological pattern – to escape from a life environment where, on the contrary, time is felt like the sole tyrannical regulator of evolution leads to imagining a Beyond (or rather “travelling to a Beyond”) where the role of time is diminished. This method incredibly entails the consideration of a state of relative motion between the two worlds, as well as the vision of a time which is less weighty, if measured from the place where we are dwelling.